

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-171372

(43)Date of publication of application : 14.06.2002

(51)Int.Cl. H04N 1/00  
G03G 15/00  
G03G 21/00  
G03G 21/20

(21)Application number : 2000-363975 (71)Applicant : CANON INC

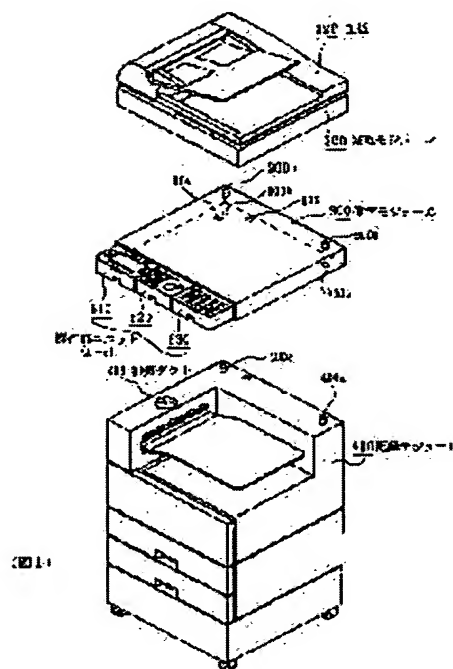
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## (54) IMAGE FORMING DEVICE

### (57)Abstract:

PROBLEM TO BE SOLVED: To provide an image forming device excellent in expansibility and developability.

SOLUTION: The device is not unitized in a single housing but is constituted of the respectively separate modules (structures) of a reading module 300, an operation module 900 and a recording module 400. The module 300, the module 900 and the module 400 are combined by a positioning and fixing means to be attachable and detachable to/from each other. The module 900, is incorporated with various kinds of controllers and a communication part providing a network function, and its frame consists of an electromagnetic shielding material. The module 900 is provided with operation part units 610, 620 and 630 which can be drawn out/housed respectively separately at operable/inoperable positions and introduces exhaust air to a heat discharging means within the module 900 through an exhaust duct 436 for discharging heat generated in the recording module.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

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[Claim(s)]

[Claim 1] An image reading means to read image information by holding in the 1st structure and changing the image information of an object into an electrical signal, An image formation means to be held in the 2nd structure which became independent of said 1st structure, and to form an image in a record medium, An actuation means to hold in the 3rd structure arranged in the middle with said 1st and 2nd structures, and for a user operate equipment, The positioning fixed means which carries out positioning immobilization of said 1st structure mostly arranged in the direction of a vertical, said 3rd structure, and said 2nd structure mutually, Image formation equipment characterized by having an electrical connecting means for outputting and inputting the electrical signal and power which include a picture signal between said image reading means, said image formation means, and said actuation means.

[Claim 2] Image formation equipment according to claim 1 with which it is divided into two or more units which have the function in which said actuation means held in said 3rd structure differ, and two or more of these units are characterized by being constituted movable to said 3rd structure, respectively between an operational location and the actuation improper location contained inside said 3rd structure.

[Claim 3] Image formation equipment according to claim 1 characterized by consisting of the quality of the materials in which said 3rd structure covers an electromagnetic wave, and holding the control means which controls actuation of the configuration member which includes said image reading means and said image formation means at least in the interior of said 3rd structure.

[Claim 4] Image formation equipment according to claim 1 characterized by having an exhaust heat means by which said 3rd structure discharges the heat inside equipment out of equipment.

[Claim 5] Image formation equipment according to claim 1 characterized by having the means of communications for exchanging the various data with which said 3rd structure contains image data among other equipments.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to image formation equipment equipped with the actuation means for an image reading means, an image formation means, and a user to operate equipment.

[0002]

[Description of the Prior Art] By conventionally constituting an image reading means to read images, such as a manuscript, and an image formation means to form an image in a web material, in one, the image formation equipment which has an image formation function is known, and this kind of equipment is known as products, such as a copying machine, the so-called digital compound machine which contained facsimile / network communication function, or a printer.

[0003] This conventional kind of equipment was constituted by integral construction as shown in drawing 8 in many cases. The image read station 1001 and the image formation section 1003 were constituted in one, and the control unit 1002 to which an operator operates equipment has been arranged at the almost same height as the image read station 1001 by the side of the transverse plane of the body 1000 of equipment, and was constituted in one with the image read station 1001 and the image formation section 1003.

[0004]

[Problem(s) to be Solved by the Invention] In the former, there was much image formation equipment which really considers the above whole equipment as a configuration, the configuration of extent which uses a feed device and a sorter part as another object as option parts slightly was only known, and it was a difficult configuration conventionally for equipment to exchange such an image read station, the image formation section, and each part like a control unit independently, respectively, or to change combination.

[0005] Therefore, equipment had conventionally the problem that a serviceman had to visit in the site in which equipment was installed even if it was lacking in expandability or possibilities, for example, there was much futility which the function of a part of image read station, image formation section, and control unit rebuys the whole equipment only with stopping having suited a user's need and having broken down and having been fixed.

[0006] The technical problem of this invention solves the above-mentioned problem, and is to offer the image formation equipment which was excellent in expandability or possibilities a module or by carrying out unitization in main each part of equipment.

[0007]

[Means for Solving the Problem] An image reading means to read image information by according to this invention holding in the 1st structure and changing the image information of an object into an electrical signal in order to solve the above-mentioned technical problem, An image formation means to be held in the 2nd structure which became independent of said 1st structure, and to form an image in a record medium, An actuation means to hold in the 3rd structure arranged in the middle with said 1st and 2nd structures, and for a user operate equipment, The positioning fixed means which carries out positioning immobilization of said 1st structure mostly arranged in the direction of a vertical, said 3rd structure, and said 2nd structure mutually, The configuration which has an electrical connecting means for outputting and inputting the electrical signal and power which

include a picture signal between said image reading means, said image formation means, and said actuation means was adopted.

[0008] Or it was divided into two or more units which have the function in which said actuation means held in said 3rd structure differ further, and two or more of these units adopted the configuration made movable, respectively between the operational location and the actuation improper location contained inside said 3rd structure to said 3rd structure.

[0009] Or further, it consisted of the quality of the materials in which said 3rd structure covers an electromagnetic wave, and the configuration with which the control means which controls actuation of the configuration member which includes said image reading means and said image formation means at least is held in the interior of said 3rd structure was adopted.

[0010] Or said 3rd structure adopted further the configuration which has an exhaust heat means to discharge the heat inside equipment out of equipment.

[0011] Or the configuration which has the means of communications for exchanging further the various data with which said 3rd structure contains image data among other equipments was adopted.

[0012]

[Embodiment of the Invention] Hereafter, the suitable operation gestalt of this invention is explained to a detail with reference to drawing. In addition, as the following operation gestalten, although the dimension of a component part, the quality of the material, a configuration, its relative configuration, etc. may be indicated for convenience, as long as there is no specific publication, it is not the thing of those meanings limited to seeing about the range of this invention.

[0013] In this invention, the structure which carried out the modularization of not unification structure but the modularization like before especially an image read station, the image formation section, and main each part of equipment like a control unit for image formation equipment is used.

[0014] The appearance \*\*\*\*\* Fig. having shown the whole facsimile apparatus configuration as image formation equipment with which drawing 1 carried out this invention, The block diagram having shown the system configuration of the whole facsimile apparatus with which drawing 2 carried out this invention, the sectional view having shown the internal configuration of the facsimile apparatus with which drawing 3 carried out this invention, and drawing 4 The top view having shown the configuration of the actuation module of the facsimile apparatus which carried out this invention, drawing 5 , the appearance perspective view having shown one mode of the whole facsimile apparatus of the facsimile apparatus with which drawing 6 carried out this invention, and drawing 7 are the mimetic diagrams having shown the various modes of facsimile apparatus which carried out this invention.

[0015] Drawing 1 expresses the description of the configuration of module of this invention clearly. one [ like before ] whose equipment is -- not a configuration but the reading module 300, the actuation module 900, and the record module 400 -- it consists of modules (structure) of an exception object, respectively. The reading module 300, the actuation module 900, and the record module 400 are combined by positioning fixed means like the after-mentioned, and are mutually removable.

[0016] Here, an outline is explained about the system configuration of the control system of facsimile apparatus, referring to drawing 2 first.

[0017] The read station 30 and the actuation module 90 which were shown in drawing 2 , and the Records Department 40 are equivalent to the reading module 300, the actuation module 900, and the record module 400 of drawing 1 , respectively.

[0018] In drawing 2 , the power supply section which supplies power required in order that a sign 10 may operate each part of equipment, and 20 are the Maine control sections which control each part of equipment electrically. The read station which reads as image information, and 40 are the Records Department which mainly reproduces image information to a sheet-like record medium by a sign's 30 applying light to reading objects, such as a manuscript, and changing the reflected light into an electrical signal.

[0019] The reading control section 35 intervenes between the Maine control section 20 and a read station 30, and this reading control section 35 controls a read station 30 the optimal according to the control signal of the Maine control section 20.

[0020] On the other hand, the record control section 45 intervenes between the Maine control section 20 and the Records Department 40, and this record control section 45 controls the Records Department 40 the optimal according to the control signal of the Maine control section 20.

[0021] Moreover, the control circuit for performing an image processing to the image information changed into the electrical signal by the read station 30, or saving image information is included in the Maine control section 20. A sign 50 is the communications department for connecting with a computer network, transmitting and receiving image information via a network, or operating equipment by remote control while receiving the image information to which the read image information has been sent from the facsimile apparatus of others [ \*\*\*\* / transmitting to other facsimile apparatus etc. ] etc. through the telephone line etc.

[0022] A sign 61 is a control unit (a) containing the display which mainly displays the condition of equipment, 62 is a control unit (b) containing the ten key for mainly performing a numerical input, and 63 is a control unit (c) containing the one-touch carbon button for choosing and inputting the destination telephone number registered beforehand, when mainly communicating using the telephone line.

[0023] Using these control units 61 (a), 62 (b), and 63 (c), an operator can grasp the condition of equipment or can perform the input for operating equipment etc. The configuration of module of this part is carried out like the after-mentioned.

[0024] Signs 90 are a power supply section 10, the Maine control section 20, the reading control section 35, the record control section 45, the communications department 50, a control unit 61 (a), 62 (b), and the actuation module that constituted 63 (c) as one module on the machine structure target, and also explain the module structure of this part in full detail later.

[0025] The facsimile apparatus of this operation gestalt is constituted as the so-called digital compound machine, and is equipped with the copy function which outputs the image information read by the read station 30 to a record medium by the Records Department 40, and functions also as scanners and printers, such as a computer, through a computer network.

[0026] Next, the configuration of the whole facsimile apparatus is explained, referring to drawing 1 and drawing 3 .

[0027] The lighting means for 300 being a reading module for reading as an image the optical property of the manuscript (read object) D laid on the 301st page of manuscript base glass in drawing 3 , and illuminating the reading side of Manuscript D, Two or more clinch mirrors for leading the reflected light from the reading side of the line sensor 302 which arranged in in the shape of a straight line two or more photo detectors which carry out photo electric conversion of the reflected light from the reading side of the manuscript D illuminated by this lighting means, and the manuscript D illuminated by the lighting means to a line sensor 302, The interface for controlling the reading module 300 electrically from the exterior etc. is mostly built in in the structure frame of a rectangular parallelepiped configuration.

[0028] The lighting means of the reading module 300 and at least one clinch mirror in said two or more clinch mirrors meeting manuscript \*\*\*\*\* of manuscript base glass 301, and the field which counters And, moving in the direction of arrow-head A which shows around in the guide side 303 and is called the direction of vertical scanning When the reflected light is led to a line sensor 302 and the photo detector which was parallel to the field of manuscript base glass 301, and was arranged in on the straight line of said line sensor in the direction A of vertical scanning and the right-angled main scanning direction repeats photo electric conversion continuously The read field of the manuscript D laid on manuscript base glass 301 is scanned two-dimensional, and optical image information is outputted as an electric picture signal.

[0029] A sign 320 is a pressure plate for sticking the manuscript D laid on manuscript base glass 301 to a manuscript base glass side, and by opening and closing to the reading module 300, although a pressure plate 320 omits illustration, focusing on the hinge used as the closing-motion supporting point, it can set Manuscript D on manuscript base glass 301 in the condition opened, or can press down Manuscript D on manuscript base glass 301 in the condition closed. Moreover, one manuscript S of the shape of a sheet of two or more sheets loaded into the pressure plate 320 is built at a time in separation / document feeder to convey.

[0030] The manuscript installation base in which a sign 321 can lay the manuscript S of a maximum

of about 100 sheets, the preliminary conveyance roller with which 322 sends a manuscript S into the separation section, and 324 are the separation rollers which convey while a collaboration operation with the inversion roller 325 which carries out rotation which conveys in the direction contrary to the direction which originally conveys Manuscript S separates Manuscript S into one sheet at a time, when two or more manuscripts S have been sent in with a preliminary conveyance roller 322.

[0031] Moreover, the discharge roller pair for discharging the feed roller which a sign 326 reads the manuscript S divided into one sheet at a time, and is conveyed toward a location, the white plate which 327 reads and is made to stick Manuscript S to manuscript base glass 301 in a \*\*\*\* location, and the manuscript S which 328 read and passed \*\*\*\*\*, and 329 are the manuscript discharge trays loading the manuscript S discharged with the discharge roller 328. The arrow head R in drawing expresses the conveyance direction of Manuscript S.

[0032] A sign 400 is the record module which constituted the laser beam printer of an electrophotography method in one, and builds in the laser-beam scanner 420 and the drum one apparatus toner cartridge 410. The cassette feeding section which carries out separation conveyance one sheet at a time from the record form P1 with which the sign 440 was loaded into the box-like sheet paper cassette 441 the about 100 maximum numbers, and 430 are fixing assemblies which fix to the record form P1 the toner imprinted by the record form P1.

[0033] In the cassette feeding section 440 The record form P1 laid in the cassette medium plate 442 which lays the record form P1 in the box-like sheet paper cassette 441, and the cassette medium plate 442 with the cassette medium plate 442 The medium plate spring 443 pushed up upwards, the back end regulation plate 444 which regulates the location by the side of the conveyance direction back end of the record form P1, and the width-of-face regulation plate which regulates the location of the cross direction of the record form P1 which was not illustrated, It has the cassette feeding section record paper-size setting means for making equipment detect the size of the cassette feeding section record form detection means for detecting that the record form P1 is laid on the cassette medium plate 442 which similarly was not illustrated, or the record form P1 etc.

[0034] When supplying the record form P1, the sheet paper cassette 441 is constituted so that it can pull out from equipment, and so that a width-of-face regulation plate (un-illustrating) and the back end regulation plate 444 can be moved according to the size of the record form P1. A sign 445 is the conveyance roller pair which conveys the record form P in which it is the cassette feeding roller which separates / conveys the maximum overlay P from the record form P1, and 447 has been separated / conveyed by the cooperativity of the feed roller 445 and the separation pad 446 according to a collaboration operation with the separation pad 446 which has high coefficient of friction toward the image-formation section while giving the conveyance force to the maximum overlay P of the record form P1. 401 is a record form tip detection sensor which detects at a time the tip of the record form P separated / conveyed, and the back end from the cassette feeding section 440 to one sheet, and 402 is a resist roller pair which conveys the record form P to the image formation section according to the detection timing of the record form tip detection sensor 401, after arranging the tip of the record form P crosswise.

[0035] In the image formation section, first, the front face of the photoconductor drum 411 as electrostatic latent-image support is uniformly electrified by the electrification member 412, this front face is scanned with the laser-beam scanner 420, and it exposes according to image information. If an electrostatic latent image is formed on a photoconductor drum 411 and the toner as a developer is made by this to adhere to the electrostatic latent image on a photoconductor drum 411 by the development sleeve 413 as development support, a toner image will be formed on a photoconductor drum 411.

[0036] The recording paper P is conveyed toward a fixing assembly 430 at the same time it makes the field which touches the photoconductor drum 411 of the record form P imprint a toner image, when it conveys inserting the record form P between the photoconductor drums 411 and the imprint rollers 403 with which the toner image was formed.

[0037] In a fixing assembly 430, it conveys by applying heat and a pressure between the fixing rollers 431 and the pressurization rollers 432 which contained the heater in the toner imprinted on the recording paper P, fixing a toner to the recording paper P. The pressure welding of the recording paper P with which the toner image was established is carried out to the delivery roller 433 and

delivery opening-RA 433, and it is discharged to the recording paper paper output tray 404 by the delivery koro 434 which carries out follower rotation. An arrow head W and the line following it are the conveyance directions and conveyance paths of the record form P at the time of performing feeding from the cassette feeding section 440.

[0038] In addition, although illustration is not carried out, between the fixing section which consists of the fixing roller 431 and the pressurization roller 432 in the conveyance path of the record form P, and the delivery roller 433 and the delivery roller pair which consists of the delivery koro 434, the delivery sensor for detecting whether the fixing section has been passed is formed in time amount predetermined in the tip of the record form P, and the back end. Moreover, the record module 400 is equipped also with the interface for controlling the record module 400 electrically from the exterior.

[0039] A sign 900 is an actuation module, and as this actuation module 900 consists of a control unit (a) unit 610, a control unit (b) unit 620, and a control unit (c) unit 630 and is shown in drawing 1 , it is arranged between the reading module 300 and the record module 400.

[0040] In this operation gestalt, the reading module 300, the record module 400, and the actuation module 900 are constituted as the structure of another object which became independent like drawing 1 , respectively rather than are incorporated in the case of one like before.

[0041] The actuation module 900, the reading module 300, and the actuation module 900 and the record module 400 have a positioning fixed means to fix mutual mechanically while positioning a mutual location to a position mechanically, respectively. This positioning fixed means can consist of a nib (only the thing of actuation module 900 inferior surface of tongue is illustrated) which fits into dowel 400a prepared in record module 400 top face as shown in drawing 1 , dowel 900a prepared in actuation module 900 top face, and these, or a lock device (un-illustrating) further prepared in each module side face etc.

[0042] Moreover, since the reading controller 350 and the record controller 450 are built in so that it may mention later, the actuation module 900 is equipped with the reading connector 904 which connects reading controller 350 grade with the reading module 300 electrically, and the record connector 905 which connects record controller 450 grade with the record module 400 electrically.

[0043] Furthermore, as shown in drawing 3 , jet-pipe 903a is prepared in the location [ / above the fixing assembly 430 of the record module 400 in the actuation module 900 ], and the exhaust heat fan 902 is stationed in this jet-pipe 903a. By this exhaust heat fan 902, the heat generated in the fixing assembly 430 is discharged out of equipment through a jet pipe 436 (refer to drawing 1 ), jet-pipe 903a, and an exhaust port 903.

[0044] Or in order to discharge the heat generated within the actuation module 900, an inlet may be prepared also in the direction of the actuation module 900 inside of jet-pipe 903a.

[0045] Moreover, although jet-pipe 903a is for turning the exhaust air from the record module 400 side in the exhaust-port 903 direction in order to make it not affect the control circuit arranged in the actuation module 900, you may make it prepare a heat insulator etc. in the perimeter of jet-pipe 903a if needed so that heat may not get across to the control circuit side arranged in the actuation module 900.

[0046] The heat efficiently generated by the record module 400 and the actuation module 900 can be discharged out of equipment by forming the means for the above exhaust heat in the actuation module 900 arranged between the reading module 300 and the record module 400 like especially this operation gestalt. For example, whether it is the case where exhaust heat means (un-illustrating), such as a fan and an exhaust port, are separately formed in the record module 400 side or is a case so that a simple substance may not be enough as the exhaust heat effectiveness, exhaust heat effectiveness can be improved by establishing an exhaust heat means and using this for the actuation module 900 side.

[0047] That is, according to the configuration which forms the means for the above exhaust heat in the actuation module 900 arranged between the reading module 300 and the record module 400, an exhaust heat means (or the part) is sharable by the inter module, and the configuration of module of the equipment can be carried out, without reducing exhaust heat effectiveness.

[0048] Next, the actuation module 900 is explained in detail, referring to drawing 4 , drawing 5 , drawing 6 , and drawing 7 .

[0049] Since the actuation module 900 is arranged between the reading module 300 and the record



module 400 as mentioned above, As it has the frame 901 equipped with sufficient mechanical strength to support the reading module 300 and is shown in this frame 901 at drawing 4 a power supply section 10, the Maine controller 200, the reading controller 350 that controls reading actuation of the reading module 300, the record controller 450 which controls record actuation of the record module 400, the communications department 50, and the above-mentioned exhaust heat fan 902 -- and The loudspeaker 906 for outputting the condition of equipment, guidance of operating instructions, etc. with audible sound or voice is also built in.

[0050] Thus, according to the structure of mounting intensively the communications department 50 or the control section of the equipment containing the Maine controller 200 in the actuation module 900, by exchanging the actuation module 900, the function of equipment can be upgraded or repair and a maintenance of equipment can be performed easily.

[0051] According to the configuration which forms especially the communications department 50 in the actuation module 900, also after it can, for example, switch easily the product specification which has network functions, such as facsimile communication, and the product specification which does not need this network function only by exchanging this actuation module 900 and a user purchases equipment even if, the upgrade by exchange of the actuation module 900 is possible.

[0052] In addition, it can avoid mounting the unit which is unrelated to the communications department 50 among the below-mentioned control unit units in the actuation module 900 which is nothing and ships the communications department 50.

[0053] The frame 901 is formed with the ingredient which covers an electromagnetic wave so that said various controllers etc. may not be conversely influenced of the electromagnetic wave which exists out of equipment so that the electromagnetic wave which said various controllers etc. generate may not begin to leak out of equipment.

[0054] By such configuration, electromagnetic shielding of the inside and outside of equipment can be carried out, the various controllers inside equipment can malfunction or fault the various devices of the equipment exterior malfunction can be prevented.

[0055] actuation -- a module -- 900 -- equipment -- a transverse plane -- a side -- corresponding -- a part -- \*\*\*\* -- equipment -- an operator -- equipment -- a direct control -- carrying out -- a sake -- a control unit -- (-- a --) -- a unit -- 610 -- a control unit -- (-- b --) -- a unit -- 620 -- and -- a control unit -- a unit -- (-- c --) -- 630 -- preparing -- having -- \*\*\*\* .

[0056] these -- a control unit -- (-- a --) -- a unit -- 610 -- a control unit -- (-- b --) -- a unit -- 620 -- and -- a control unit -- a unit -- (-- c --) -- 630 -- the frame 901 of the actuation module 900 -- receiving -- a non-illustrated rail etc. -- minding -- the transverse-plane side of equipment -- a near side (user side) -- respectively -- separate -- pulling out (operational location) -- moreover -- it can contain (actuation improper location) .

[0057] Hereafter, it explains per structure of each control unit unit.

[0058] In the control unit (a) unit 610, a sign 611 is LCD which displays the condition and the contents of an input of equipment, operating instructions, etc. by images, such as an alphabetic character, and a figure, a graphic form. Moreover, a sign 612 is an LED display. This LED display 612 turns on or blinks red LED at the time of the error of equipment, or it is constituted so that green LED may be turned on or blinked at the time of operation of equipment, and thereby, if it is the distance which can be viewed, it can check the outline of the condition of equipment by looking even from a distant place comparatively. In addition, the LED display 612 can be checked by looking from the outside of equipment, also where a control unit a unit is contained to the actuation module 900, as shown in drawing 6 .

[0059] The function key for in addition to this inputting combining the display of LCD611 etc. is formed in the control unit a unit 610.

[0060] Moreover, in the control unit (b) unit 620, the ten key group into which a sign 621 inputs a numeric value etc., and 622 are start keys which direct initiation of reading actuation etc., and 623 is a stop key which directs interruption of actuation of equipment.

[0061] Moreover, in the control unit unit (c) 630, when communicating using the telephone line, a sign 631 The telephone number which the key which it had was alike, respectively, assigned beforehand, and was registered The one-touch key group which can input a desired key only by pushing once, 632 has the non-illustrated closing motion supporting point, and is one-touch covering

which can be opened and closed to the control unit (c) unit 630. The aforementioned one-touch key group 631 It can change to the key which chooses the another telephone number, an another function, etc. by the case where the switch which is not illustrated [ which is interlocked with closing motion of the one-touch covering 632 ] is opening with the case where the one-touch covering 632 has closed.

[0062] in addition -- a control unit -- (-- a --) -- a unit -- 610 -- a control unit -- (-- b --) -- a unit -- 620 -- and -- a control unit -- a unit -- (-- c --) -- 630 -- respectively -- alike -- division -- arrangement -- carrying out -- having -- a function -- dividing -- a way -- division -- a number -- the above -- dividing -- a way -- a number -- limiting -- not having -- a thing -- being needless to say .

[0063] as mentioned above -- a control unit -- (-- a --) -- a unit -- 610 -- a control unit -- (-- b --) -- a unit -- 620 -- and -- a control unit -- a unit -- (-- c --) -- 630 -- respectively -- having become independent -- a condition -- the actuation module 900 -- receiving -- an operational location -- pulling out -- being certain -- it is and can contain in an actuation improper location.

[0064] That is, as shown in drawing 5 or drawing 7 (a), all control unit units can be pulled out and the input and setting up function by display capabilities, the ten key, and the one-touch key can be used. Moreover, in the mode of operation whose actuation and display only like only waiting for the receiving image which minded the communications department 50, for example are unnecessary, as shown in drawing 6 or drawing 7 (b), all control unit units can be contained, and the occupancy tooth spaces which equipment occupies can be reduced.

[0065] Or as shown in drawing 7 (c) - (d) according to the various setting modes of equipment, it is also possible to pull out and use only a required control unit unit. drawing 7 -- (-- c --) -- \*\*\*\* -- a display -- containing -- a control unit -- a unit -- (-- a --) -- 610 -- drawing 7 -- (-- d --) -- and -- drawing 7 -- (-- e --) -- \*\*\*\* -- a control unit -- a unit -- (-- a --) -- 610 -- a control unit -- (-- b --) -- a unit -- 620 -- or -- a control unit -- a unit -- (-- c --) -- 630 -- either -- pulling out -- using -- \*\*\*\* .

[0066] As shown above, with this operation gestalt, by making equipment into the modularization structure which consists of the reading module 300, the record module 400, and the actuation module 900, it can exchange independently or combination can be changed. Therefore, there is no need that only the function of some these modules stopping having suited a user's need, and having broken down also rebuys the whole equipment like before, and only a required module can be upgraded / exchanged. Moreover, although the serviceman also had to visit repair by integral construction like before in the site in which equipment was installed, if possible, a module can be brought back to the service station where the facility was more ready, and repair/adjustment can be performed.

[0067] Moreover, by doubling with the operating condition of equipment the control unit unit divided into plurality, being able to pull out and use a required control unit unit from the actuation module 900 suitably, and containing the control unit unit, if unnecessary, a check by looking of the recording paper discharged by the recording paper paper output tray 404 is made easy, and there is an advantage, such as becoming easy to take out the recording paper, and the operability of equipment can be improved remarkably.

[0068]

[Effect of the Invention] An image reading means to read image information by according to this invention holding in the 1st structure and changing the image information of an object into an electrical signal so that clearly from the above explanation, An image formation means to be held in the 2nd structure which became independent of said 1st structure, and to form an image in a record medium, An actuation means to hold in the 3rd structure arranged in the middle with said 1st and 2nd structures, and for a user operate equipment, The positioning fixed means which carries out positioning immobilization of said 1st structure mostly arranged in the direction of a vertical, said 3rd structure, and said 2nd structure mutually, The configuration which has an electrical connecting means for outputting and inputting the electrical signal and power which include a picture signal between said image reading means, said image formation means, and said actuation means is adopted. By carrying out the configuration of module of an image reading means, an actuation means, and the image formation means as the 1st, 2nd, and 3rd structures, these modules can be exchanged independently or combination can be changed. Therefore, only these required modules can be upgraded, exchanged or fixed, and image formation equipment excellent in expandability or possibilities can be offered.

[0069] It is divided into two or more units which have the function in which said actuation means held in said 3rd structure differ further, and two or more of these units receive said 3rd structure. Or an operational location, By adopting the configuration made movable between the actuation improper locations contained inside said 3rd structure, respectively, it can be used according to the operating condition of equipment, carrying out the drawer of the unit of a required actuation means suitably, and the operability of equipment can be improved remarkably.

[0070] Or electromagnetic shielding of the inside and outside of equipment carries out, the various controllers inside equipment can malfunction or the fault the various devices of the equipment exterior malfunction can prevent by consisting of the quality of the materials in which said 3rd structure covers an electromagnetic wave further, and adopting the configuration with which the control means which controls actuation of the configuration member which includes said image reading means and said image-formation means at least is hold in the interior of said 3rd structure.

[0071] Or by adopting the configuration which has further an exhaust heat means by which said 3rd structure discharges the heat inside equipment out of equipment, an exhaust heat means (or the part) is sharable by the inter module, and the configuration of module of the equipment can be carried out, without reducing exhaust heat effectiveness.

[0072] Or by adopting the configuration which has the means of communications for exchanging further the various data with which said 3rd structure contains image data among other equipments For example, it can switch easily only by exchanging the 3rd structure which includes an actuation means for the product specification which has network functions, such as facsimile communication, and the product specification which does not need this network function. also after a user purchases equipment even if, the upgrade by exchange of the 3rd structure including an actuation means is possible -- etc. -- expandability and possibilities can be offered.

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[Translation done.]

\* NOTICES \*

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the appearance perspective view having shown the configuration of module of the whole facsimile apparatus which carried out this invention.

[Drawing 2] It is the block diagram having shown the system configuration of the whole facsimile apparatus concerning 1 operation gestalt of this invention.

[Drawing 3] It is the sectional view having shown the internal configuration of the whole facsimile apparatus concerning 1 operation gestalt of this invention.

[Drawing 4] It is the top view having shown the configuration of the actuation module of the whole facsimile apparatus concerning 1 operation gestalt of this invention.

[Drawing 5] It is the appearance perspective view having shown one mode at the time of actuation of the facsimile apparatus concerning 1 operation gestalt of this invention.

[Drawing 6] It is the appearance perspective view having shown one mode from which it differs at the time of actuation of the facsimile apparatus concerning 1 operation gestalt of this invention.

[Drawing 7] It is the plan having shown various kinds of actuation modes from which the actuation module of the facsimile apparatus concerning 1 operation gestalt of this invention differs.

[Drawing 8] It is the appearance perspective view having shown the configuration of the facsimile apparatus of the conventional example.

[Description of Notations]

A The direction of vertical scanning

D Manuscript

P Record form

R The manuscript conveyance direction

S Manuscript

W The record form conveyance direction

10 Power Supply Section

20 Main Control Section

30 Read Station

35 Reading Control Section

40 Records Department

45 Record Control Section

50 Communications Department

61 Control Unit (a)

62 Control Unit (B)

63 Control Unit (C)

90 Actuation Module

200 Main Controller

300 Reading Module

301 Manuscript Base Glass

302 Line Sensor

303 Guide Side

320 Pressure Plate

321 Manuscript Installation Base

322 Preliminary Conveyance Roller  
324 Separation Roller  
325 Inversion Roller  
326 Feed Roller  
327 White Plate  
328 Manuscript Discharge Roller Pair  
329 Manuscript Discharge Tray  
350 Reading Controller  
400 Record Module  
401 Record Form Tip Detection Sensor  
402 Resist Roller Pair  
403 Imprint Roller  
404 Recording Paper Paper Output Tray  
410 Drum One Apparatus Toner Cartridge  
411 Photoconductor Drum  
412 Electrification Member  
413 Development Sleeve  
420 Laser-Beam Scanner  
430 Fixing Assembly  
431 Fixing Roller  
432 Pressurization Roller  
433 Delivery Roller  
434 Delivery Koro  
436 Jet Pipe  
440 Cassette Feeding Section  
441 Sheet Paper Cassette  
442 Cassette Medium Plate  
443 Medium Plate Spring  
444 Back End Regulation Plate  
445 Feed Roller  
446 Separation Pad  
447 Conveyance Roller Pair  
450 Record Controller  
610 Control Unit Unit (a)  
611 LCD  
612 LED Display  
620 Control Unit Unit (B)  
621 Ten Key Group  
622 Start Key  
623 Stop Key  
630 Control Unit Unit (C)  
631 One-touch Key Group  
632 One-touch Covering  
900 Actuation Module  
901 Frame  
902 Exhaust Heat Fan  
903 Exhaust Port  
904 Reading Connector  
905 Record Connector  
906 Loudspeaker

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[Translation done.]

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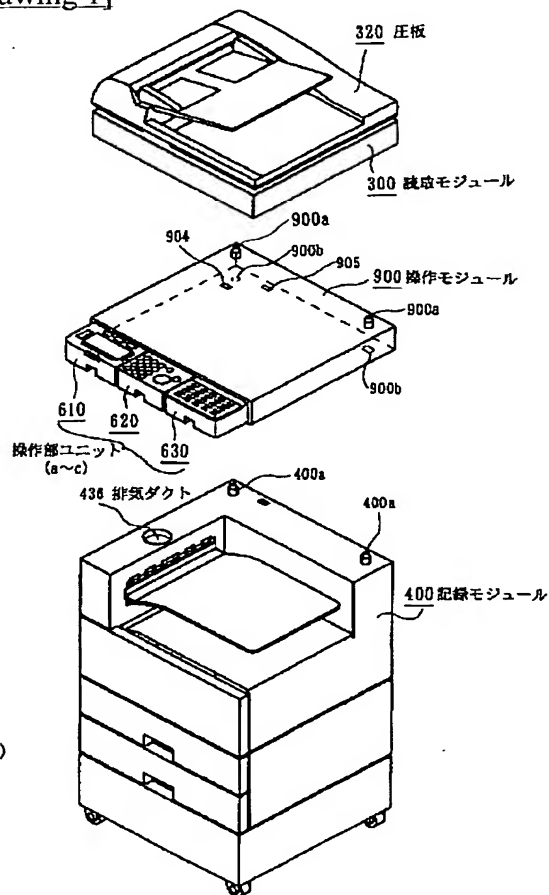
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DRAWINGS

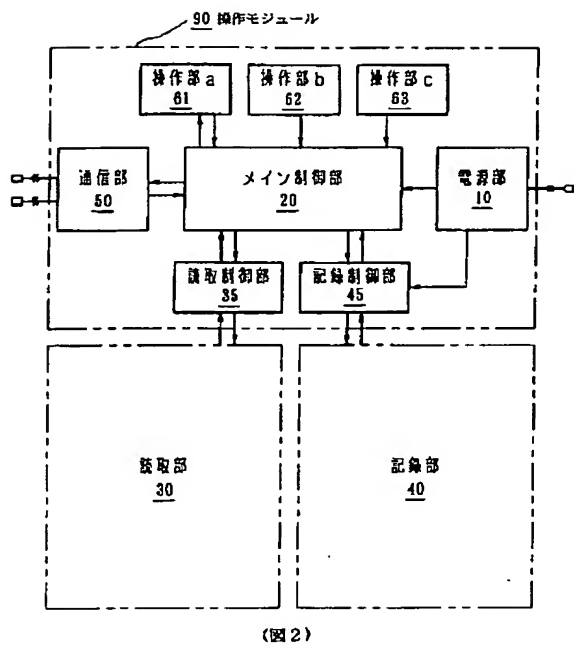
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[Drawing 1]

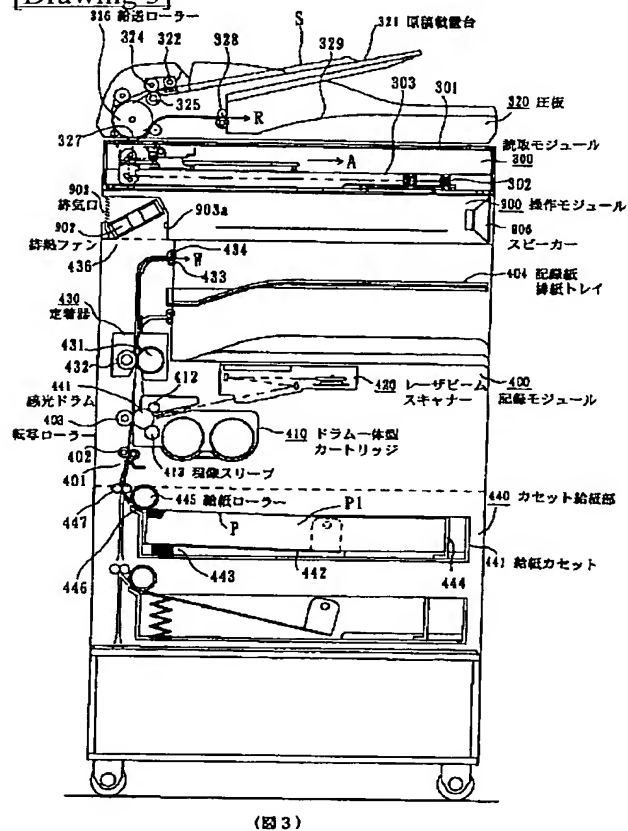


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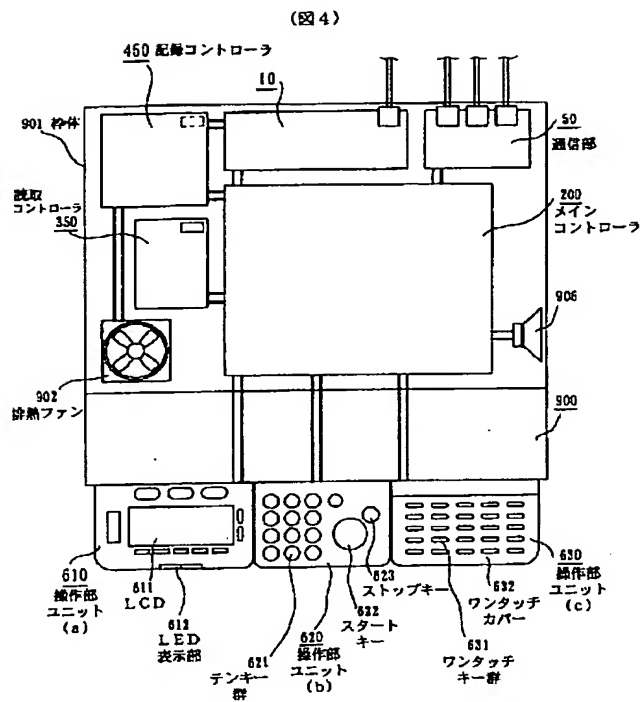
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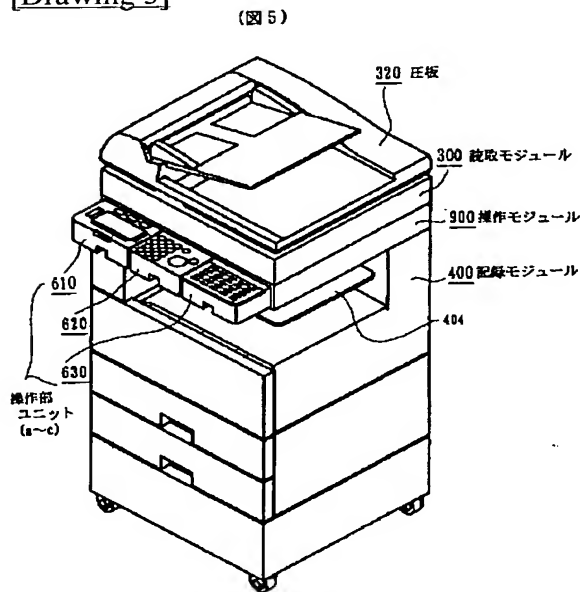
[Drawing 3]



[Drawing 4]



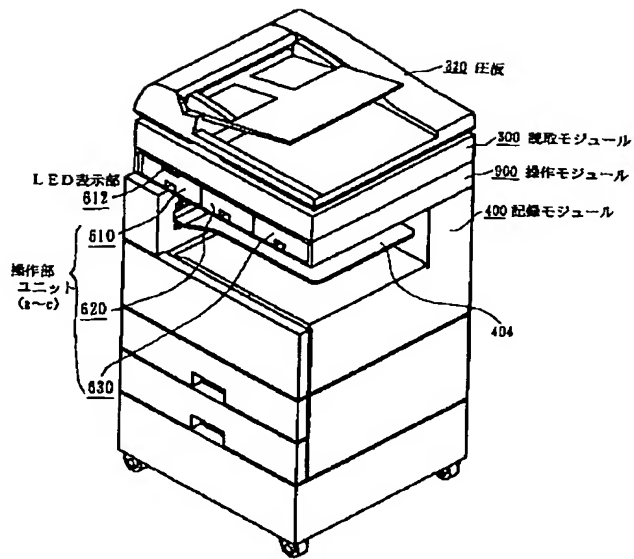
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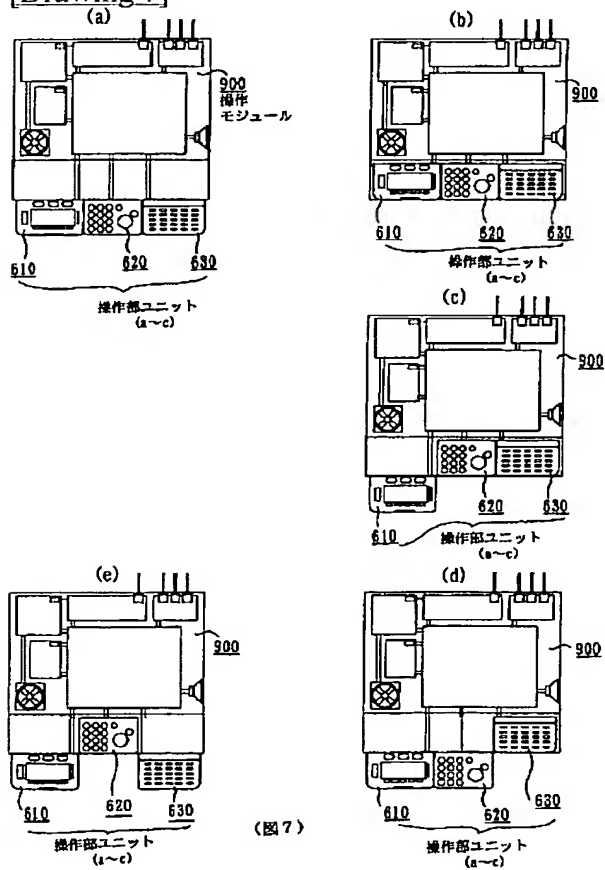
[Drawing 6]



(図 6)

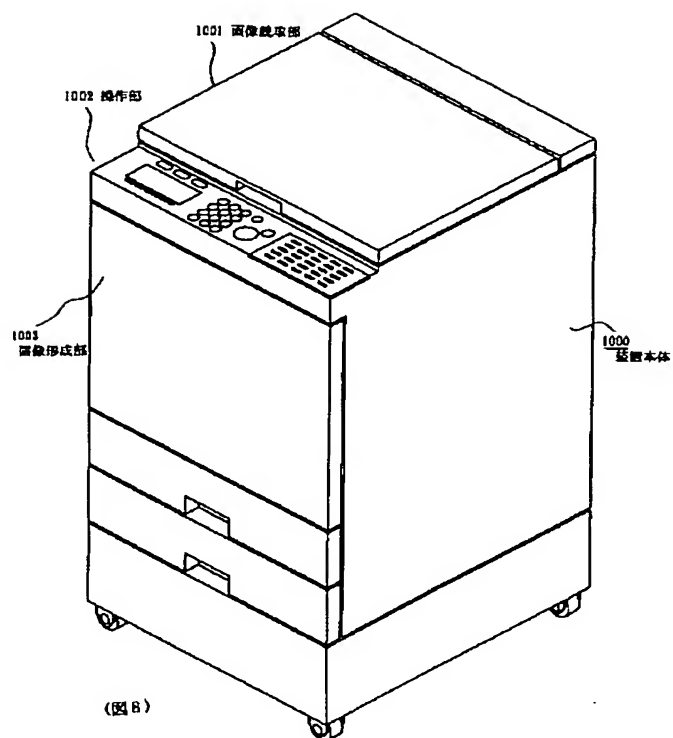


[Drawing 7]



(図 7)

[Drawing 8]



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[Translation done.]